



Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report For Gosnold Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
September 2003

Table 1: Public Water System (PWS) Information

PWS NAME	Gosnold Water Department
PWS Address	Town Hall, Tower Hill Road, P.O. Box 28
City/Town	Cuttyhunk, Massachusetts 02713
PWS ID Number	4109000
Local Contact	Asa Lombard
Phone Number	(508) 990-7408

Well Name	Source ID#	Zone I (in feet)	IWPA (in feet)	Source Susceptibility
Wellfield	01G	372	1840	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Town of Gosnold residents on Cuttyhunk Island receive their water from a wellfield consisting of five wells which is located on the west side of the Island. The wellfield has a Zone I of 372 feet and an Interim Wellhead Protection Area (IWPA) of 1840 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. Soda ash (anhydrous sodium carbonate) is added to the water pumped from the well to neutralize its natural corrosive chemistry. The DEP requires public water suppliers to

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

The IWPA contains some potential sources of contamination that if managed improperly could threaten the quality of water at the wellhead.

Key issues include:

1. **Zone I;**
2. **Historic landfill;**
3. **Septic system;**
4. **Road.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of one high threat within the IWPA.

1. **Zone I** – Currently, the well does meet DEP's Zone I regulations, which allow only water supply related activities in the Zone I and require that the land within the Zone I be owned or controlled by the public water system. The facility's Zone I only contains the wells and related pumping facility. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- Do not use or store pesticides, fertilizers or road salt within the Zone I.
- Ensure any non-water supply activities remain out of your Zone I area.

2. **Historic Landfill** – A landfill is located within the IWPA southeast of the wells. Landfills have the potential to leak contaminants into the groundwater.

Recommendation:

- Monitor groundwater around the landfill to ensure that any contamination does not migrate toward your drinking water source.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Potential Concern
Landfill	No	Yes	High	Contamination from leachate into groundwater.
Septic system	No	Yes	Moderate	bacteria, improper disposal of hazardous materials
Fishing /Boating	No	Yes	Low	Potential for fuel leaks.
Aquatic Wildlife	Yes	Yes	Moderate	Microbial contamination from fecal matter.

* For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

3. **Septic System** – A residential septic system is located within the IWPA.

Recommendation:

- Septic system components should be inspected and maintained on a regular basis.
- Educate residents on proper disposal of household hazardous materials.

4. **Road** – Part of a road is within the edge of the IWPA. Runoff and spills from roads can contaminate public wells.

Recommendation:

- Inspect access roads for illegal dumping.
- Ensure any spills are properly contained and cleaned-up.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Gosnold officials should review and adopt the key recommendations above and the following:

Priority Recommendations:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I to comply with DEP's Zone I requirements.
- ✓ Prohibit public access to the well and pumphouse by locking facilities.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping or evidence of vandalism.
- ✓ Use Best Management Practices (BMPs) and restrict activities that could pose a threat to the water supply.
- ✓ Keep road and parking lot drainage away from the well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best

management practices; include certified operator and residents. Post labels as appropriate on raw materials and hazardous waste.

- ✓ Ensure drinking water protection area signs are posted at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff at the road is properly managed.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

Planning:

- ✓ Work with local officials in town to include the facility's IWPA in an Aquifer Protection District Bylaw and to assist you in improving protection.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

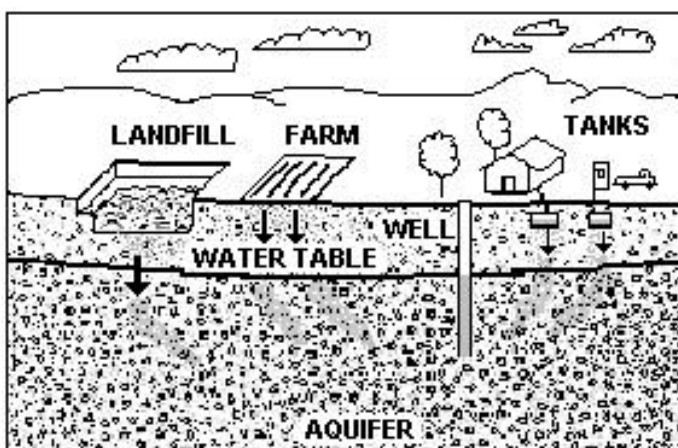


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Isabel Collins in DEP's Lakeville Office at (508) 946-2726 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under that program. For additional information, please refer to DEP's web site. Other funding opportunities are described in *Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation* at <http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf>.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

5. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Fact Sheet
- Your Septic System Brochure

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.